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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/756,570	01/08/2001	Linghsiao Wang	71795/10014	6967

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TUCKER, ELLIS & WEST LLP
1150 HUNTINGTON BUILDING
925 EUCLID AVENUE
CLEVELAND, OH 44115-1475

EXAMINER	
NG, CHRISTINE Y	
ART UNIT	**PAPER NUMBER**
2663	3

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/756,570	WANG ET AL.	
	Examiner	Art Unit	
	Christine Ng	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 8-14* is/are rejected.

7)☒ Claim(s) *5-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,597,695 to Desai et al.

Referring to claims 1 and 14, Desai et al disclose in Figure 1 a method of implementing a control channel for exchanging information between switching devices in a packet switched communications network. The method comprises:

Selecting an unused portion (Element 26) of a packet format (ATM packet) used for communicating between switching devices (ATM switches). "Not all of the bits in the header portion of the ATM cell stream are used" so a circuit "robs the unused bits from the header portion and then inserts information into the unused bits in the header portion" (Column 1, lines 45-48).

Embedding control information in the unused portion (Element 26). The unused portion (Element 26) forms a robbed bit stream (Element 28) which carries control information such as "an additional video channel, a program guide or other information" (Abstract).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 3, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,597,695 to Desai et al in view of U.S. Patent No. 2002/0027888 to Creigh.

Referring to claims 2 and 15, Desai et al do not disclose that the communications network is an Ethernet network.

Creigh discloses that Ethernet is the most pervasive and dominant network technology for LANs in "providing local interconnect between personal computer systems, work stations and servers". Refer to Paragraph 0003. Ethernet can also be easily upgraded to higher speed network technologies, including Fast Ethernet and Gigabit Ethernet. Refer to Paragraph 0004. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the communications network is an Ethernet network, the motivation being that Ethernet is the most widely installed local area network for connecting computers and devices which share a common server within a small geographical area.

Referring to claims 3 and 16, Desai et al do not disclose that the Ethernet network is a Gigabit Ethernet network.

Creigh discloses that Gigabit Ethernet is necessary in providing high speed networking "as the need to exchange information becomes more and more imperative and as the scope and size of the information being exchanged increases". Refer to Paragraph 0003. Gigabit Ethernet is advantageous in that it "provides 1 Gbps bandwidth in combination with the simplicity of an Ethernet architecture, at a lower cost than other technologies of comparable speed". Also, Gigabit Ethernet "offers a smooth, seamless upgrade path for present 10BASE-T or 100BASE-T Ethernet installations". Refer to Paragraph 0004. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the Ethernet network is a Gigabit Ethernet network, the motivation being that Gigabit Ethernet is a high speed network technology that is inexpensive compared with other high speed network technologies and offers the simplicity of an Ethernet structure.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,597,695 to Desai et al in view of U.S. Patent No. 2002/0027888 to Creigh, and in further view of U.S. Patent No. 5,898,678 to Jin et al.

Desai et al and Creigh do not disclose that the unused portion is in an eight octet preamble frame.

Jin et al discloses that the unused portion is in an eight octet preamble frame. In Ethernet systems, the preamble, which is eight octets, "may be used to carry important non-data information about the packet, such as timing, length, and error status, among others" (Column 1, lines 60-63). Refer to Column 1, line

66 to Column 2, line 7. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the unused portion is in an eight octet preamble frame, the motivation being that the preamble in Ethernet systems is usually used to carry non-data information to facilitate packet transmission.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,597,695 to Desai et al in view of U.S. Patent No. 6,636,499 to Dowling et al.

Desai et al do not disclose that the switching devices are managed as a group of switches in a clustered arrangement.

Dowling et al disclose in Figures 8-10 that the switching devices (Elements 102) are managed as a group of switches in a clustered arrangement. Refer to Column 9, line 60 to Column 10, line 25. A cluster is managed by a commander switch (Element 100) that is the "single point of access used to configure and monitor all the switches in a cluster" (Column 10, lines 29-30). Requests "intended for a member switch are first sent to the commander, then forwarded to the appropriate member switch in the cluster" (Column 10, lines 37-39). "All communication with cluster switches is through a single IP address assigned to the commander switch" (Column 9, lines 64-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the switching devices are managed as a group of switches in a clustered arrangement, the motivation being that clusters maximize network efficiency in that commands to individual switches of a cluster can be managed

by a commander switch in charge of the cluster instead of addressing each switch individually. Furthermore, a common commander switch can monitor the traffic loads and conditions of switches within its cluster, which is more efficient than one commander switch for the entire network.

7. Claims 9 and 10 are is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,597,695 to Desai et al in view of U.S. Patent No. 6,667,985 to Drummond-Murray.

Referring to claim 9, Desai et al do not disclose that the control information relates to disable and enable flow control.

Drummond-Murray discloses in Figure 2 that the control information (MAC control parameters) relates to disable and enable flow control. During congestion, a device can a MAC flow control frame to another device telling it to stop sending data for an interval of time, which is specified in the 'PAUSE' field of the control frame. Refer to Column 4, line 55 to Column 5, line 3. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the control information relates to disable and enable flow control, the motivation being during congestion, flow control must be implemented between two ports to stop transmission of data until the congestion is cleared up; thereby maximizing system efficiency.

Referring to claim 10, Desai et al do not disclose that the control information relates to the transmission priority of packets between switching devices.

Drummond-Murray discloses in Figure 2 that the control information relates to the transmission priority of packets between switching devices. When determining which devices need to cease transmission of data due to congestion, the higher priority packets are excluded. Ports carrying high priority traffic are "unconditionally given as much traffic as they require", which "enables important or high priority traffic to continue unimpeded while less important or low priority traffic is restricted" (Column 4, lines 1-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the control information relates to the transmission priority of packets between switching devices, the motivation being that in case of congestion, ports carrying higher priority traffic should not have to reduce their traffic load; thereby allowing time critical information to be given priority over less important information.

8. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,597,695 to Desai et al in view of U.S. Patent No. 6,674,769 to Viswanath.

Desai et al do not disclose that the control information relates to results of a hash algorithm implemented as between ports within a cluster.

Viswanath discloses that the control information relates to results of a hash algorithm implemented as between ports within a cluster. Viswanath discloses a switch which generates a "multi-key packet signature to be used as search key for searching of a layer 3 switching entry for the received data packet". The multi-key act as a hash key based on selected parameters

including the IP source/destination address and the TCP/UDP source/destination port address. Based on an hashing algorithm, the hash key for a packet is used to search a table for a matching key to determine a routing path for the packet. Refer to Column 5, lines 5-24 and Column 5, line 60 to Column 6, line 28. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the control information relates to results of a hash algorithm implemented as between ports within a cluster, the motivation being that using a hash algorithm, a key can be developed for a packet using the source/destination port number and used to search a table of other keys to determine a routing path for the packet.

9. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,597,695 to Desai et al in view of U.S. Publication No. 2002/0075809 to Phaal.

Desai et al do not disclose that the control information relates to ports making up a mirrored pair involving a switch cluster.

Phaal discloses in Figure 3 that the control information relates to ports making up a mirrored pair involving a switch cluster. A mirror port (Element 315) forms a pair with any of the selected ports (Elements 320a-m). The mirror port (Element 315) copies information sent to its pair-mate and sends the information to a monitor device (Element 335). The mirror port (Element 335) can therefore regulate packet flows through certain ports in order to diagnose traffic-level problems and congestion conditions. Refer to Paragraphs 0023 and 0025. Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to include that the control information relates to ports making up a mirrored pair involving a switch cluster, the motivation being by using port mirroring between ports, a mirror port can regulate traffic loads and congestion conditions on another port that it is monitoring; thereby facilitating transmission through a switch.

10. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,597,695 to Desai et al in view of U.S. Patent No. 6,510,162 to Fijolek et al.

Desai et al do not disclose that the control information relates to multicast packet protocols distributed to cluster switches within a network.

Fijolek et al discloses in Figure 7 that the control information relates to multicast packet protocols distributed to cluster switches within a network. A single multicast address is assigned to each cluster and is used to issue single commands to the clusters. The cluster replaces the need to issue individual commands to each member of the cluster. Refer to Column 16, line 52 to Column 17, line 6. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the control information relates multicast packet protocols distributed to cluster switches within a network, the motivation being in a cluster, multicast commands can be sent to a single multicast address instead of individually addressing each member of the cluster; thereby saving network resources.

Allowable Subject Matter

11. Claim 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (703) 305-8395. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nguyen Chau can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng cw
May 10, 2004

CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600